SOIL SURVEY OF LANCASTER COUNTY, SOUTH CAROLINA.

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LOCATION AND BOUNDARIES OF THE AREA.

Lancaster County is situated in the northeastern part of the State of South Carolina, and comprises an area of 311,232 acres, or approximately 486 square miles. The county is irregular in shape, and is bounded on the north by the State line, on the east by Lynch Creek,

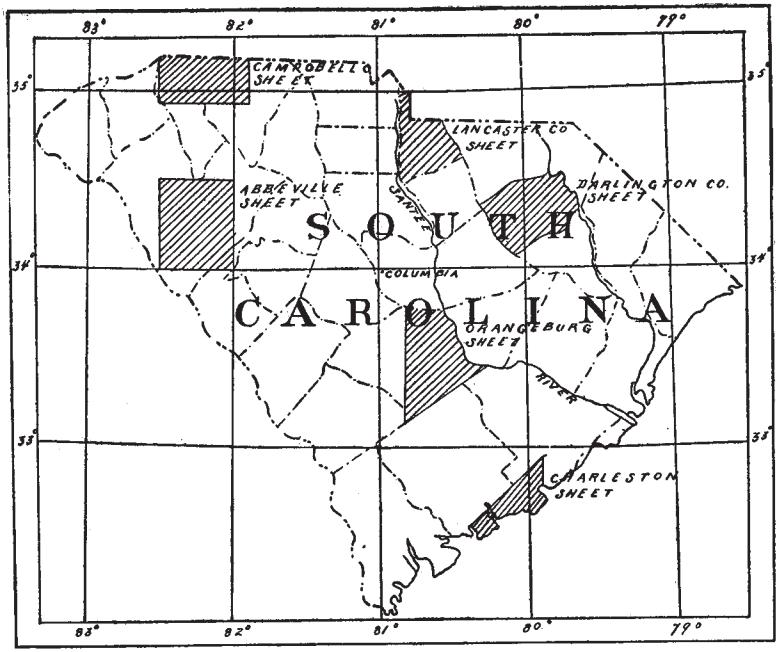

FIG. 5.—Sketch map showing location of the Lancaster County area, South Carolina.

on the west by the Catawba River, and on the south by Kershaw County. The Catawba River extends in a general north and south direction, and Lynch Creek flows slightly southeast. Lancaster, near the center of the county, with a population of 2,500, is the county seat and the largest town in the county. Kershaw and

Heath Spring are the only other towns, though there are several small villages. The population of the county is 24,311.

HISTORY OF SETTLEMENT AND AGRICULTURAL DEVELOPMENT.

Originally Camden County included Camden, Lancaster, and Kershaw counties. By an act ratified March 12, 1785, the Camden district was divided into seven counties, to be known as Clarendon, Richland, Fairfield, Claremont, Lancaster, York, and Chester.

The first permanent settlers, who emigrated from Pennsylvania, were of Scotch-Irish descent. A few French were also among the early settlers. They met with such poor success in the cultivation of the crops to which they had been accustomed that they resorted to collecting and exporting the products of the great forests which surrounded them. In return for the necessaries of life they sent to the mother country tar, turpentine, resin, lumber, and skins. With the further settlement of the up country by the descendants of those who in 1670 established themselves on the seacoast of South Carolina the culture of wheat, barley, rye, corn, and tobacco became more successful, and the inhabitants of the Lancaster section, following the example of Joseph Kershaw, established flouring mills. In 1802 there were a number of these in operation in the county. About this time, however, the interest in cotton production became so great as to divert attention from every other crop, and the cereals lost ground until the low prices of cotton from 1840 to 1850 prepared the way for a greater diversity of agricultural industries. The small grain crop of 1850 exceeded in yield any produced up to that time. Since then the production of the cereals has again declined.

Indigo was conspicuous among the early crops. In 1745 the British Parliament placed a bounty on the production of indigo in British possessions, with the result that the crop reached a high development in South Carolina. Owing, however, to the cheaper production in India and elsewhere the industry was practically abandoned in the early part of the nineteenth century, though indigo was produced to a small extent until 1848.

CLIMATE.

No complete meteorological records were available for any places within the area, but the observations taken at Winthrop College, located at Rockhill, and at Winnsboro, situated, respectively, 28 miles northwest and 40 miles southwest of Lancaster, will suffice to show the approximate normal monthly and annual temperature and precipitation.

The following table was compiled from the Weather Bureau records for the two places named:

Normal monthly and annual temperature and precipitation.

Month.	Winthrop College.		Winnsboro.		Month.	Winthrop College.		Winnsboro.	
	Temperature.	Precipitation.	Temperature.	Precipitation.		Temperature.	Precipitation.	Temperature.	Precipitation.
	° *F.*	*Inches.*	° *F.*	*Inches.*		° *F.*	*Inches.*	° *F.*	*Inches.*
January	43.2	3.51	43.2	3.17	August	78.0	4.38	78.0	4.80
February	45.8	4.69	46.6	4.61	September	73.2	4.12	72.9	3.83
March	52.6	4.26	52.1	3.61	October	62.1	3.18	62.2	2.58
April	61.4	3.36	62.2	2.93	November	53.3	2.99	53.5	3.00
May	71.4	3.44	71.5	3.30	December	46.4	2.84	46.7	2.80
June	76.8	4.57	76.5	4.15	Year	61.9	46.56	62.0	43.78
July	79.0	5.22	78.9	5.00					

Light frosts are encountered in October and killing ones about the 1st of November. There is usually a slight snowfall in winter, but it remains on the ground only a short time. Sleet is more common. The prevailing winds are from the south and southwest.

There is some local difference in climatic conditions within the area. The sandy region in the extreme southeastern part of the county is somewhat warmer and drier than the country immediately north of it. It is also less subject to heavy dews and fogs.

The growing season lasts between seven and seven and a half months.

PHYSIOGRAPHY AND GEOLOGY.

Lancaster County represents an originally level plain which has undergone the erosive action of many streams to such an extent that its topographic features are now very marked, being made up of a succession of rolling hills and deep stream valleys. The divides have a tendency to descend rather abruptly to the narrow flood plains of the streams. In the extreme southeastern part of the county, around Kershaw and Heath Spring, the country assumes a more undulating and less rolling character, and it is here that the heavier types of soil—the Cecil series—give way to the lighter and more sandy soil—the Norfolk sand. As the large waterways are approached the surface becomes more broken and precipitous, and this rough unevenness characterizes the southwestern corner of the county.

The ridges in the county have a north and south trend, the main watershed being topped by the Rocky River road. This divide gives rise to two separate systems of drainage—that of Lynch Creek on the east and that of the Catawba River on the west. Both of these water courses receive the drainage of their many affluents at intervals of 3 or 4 miles. These latter streams flow generally east and west, and

meander from their main direction but slightly, though extremely tortuous in detail. There is considerable undeveloped water power in these streams.

Two separate physiographic divisions, of different geological age, give rise to soils belonging to two series, as follows: The Cecil series, formed in situ from underlying rocks, and the Norfolk sand, derived from sedimentary deposits. By far the greater part of the county is made up of the former series, which occupies what is known as the Piedmont Plateau. In past geological ages this plateau represented the foothills of the Appalachian Range, but subsequently yielded to the erosive action of water and was worn down to form a gently undulating plain. Upon undergoing a later upheaval the stream courses began their work anew, and most of this section is represented at the present time by rolling topography. The soils of this plateau are derived from the weathering of granites, gneiss, diorite, talc schists, and other igneous and altered rocks which date far back in geological ages.

The Coastal Plain region, of much more recent date, encroaches upon the Piedmont Plateau in the southeastern part of the county, and is represented by a mantle of deep sand, composed mainly of rounded grains, which gives rise to the Norfolk sand.

Outcrops of the underlying granite make their appearance in many sections of the county, this being especially true on the soil type designated as Cecil gravelly loam. In the southwestern part of the county a very superior grade of fine-grained granite is being quarried and hauled to Heath Spring for shipment. Some mineral resources of the area are also being developed. There are two gold mines in active operation.

SOILS.

With the exception of the Norfolk sand, which is sedimentary, and the Meadow, an alluvial deposit, all of the types in the area surveyed are of residual origin. They are derived from the disintegration and decomposition of granites, talc schists, and other igneous and metamorphic rocks, and are characteristic soils of the Piedmont Plateau.

The actual and relative extent of each type of soil is shown in the following table:

Areas of different soils.

Soil.	Acres.	Per cent.	Soil.	Acres.	Per cent.
Cecil clay	114,752	36.9	Cecil sandy loam	20,672	6.6
Cecil silt loam	74,048	23.8	Meadow	11,392	3.7
Norfolk sand	38,528	12.4	Total	311,232	.....
Cecil fine sandy loam	28,096	9.0			
Cecil gravelly loam	23,744	7.6			

CECIL CLAY.

The prevailing soil type in the Piedmont section, and the most valuable for general farming purposes, is the Cecil clay. It consists of a reddish-brown loam or clay loam to a depth of 4 to 6 inches, underlain by a sticky red clay, which becomes stiffer with depth. The underlying granite bed rock is usually encountered at from 20 to 60 feet, as shown by cuts and wells. Considerable organic matter is usually present in the upper 6 inches of soil, which in part accounts for its loamy character. Stony areas are common, but so deep and thorough has been the weathering that but a relatively small proportion of the land is of this character. A characteristic of the type is the occurrence in both soil and subsoil of quartz veins, which on account of their insoluble nature have resisted weathering. Where these outcrop on the surface the quartz fragments occur broadcast and in places are an impediment to cultivation. These areas, however, are limited in occurrence and extent.

The Cecil clay is found in very large bodies in the western and southeastern parts of the area and also occurs in lesser bodies in other parts of the county. It is found on the rolling hills and slopes in the northern part of the county, but to the southward more generally confines itself to the slopes and stream breaks. On account of its elevated position the type is well drained. It is derived principally by slow disintegration and decomposition from the older rocks, chiefly granites and gneiss, but also in less degree from diorite, porphyries, diabase, and other igneous and metamorphic rocks. These sometimes outcrop on the surface, a fact due in part to the greater durability of the rock itself, and in greater part to erosion, owing to its elevated position in relation to the contiguous slopes. These rocks are most frequently seen along stream courses.

The type comprises very little timbered land, but small groves of oak, hickory, and shortleaf pine are to be seen, usually on the more precipitous slopes. The soil has a tendency to wash and gully unless care is exercised in managing and cultivating it. This feature will be discussed in another part of the report.

Owing to its good drainage features, the type can withstand the effects of wet seasons to a marked degree, though it suffers from drought in the long dry seasons. This type is well adapted to cotton, and is cultivated almost exclusively to that crop, yielding from 200 to 250 pounds of lint per acre. Some corn is grown, and the yield is from 10 to 20 bushels per acre. The soil is also excellently adapted to grasses and small grain, though only a very small acreage is planted to these crops. Cowpeas are grown to a limited extent, but do not thrive on this type as well as on the more sandy soils.

The following table gives the results of mechanical analyses of fine earth of typical samples of the soil and subsoil of the Cecil clay:

Mechanical analyses of Cecil clay.

No.	Locality.	Description.	Fine gravel, 2 to 1 mm.	Coarse sand, 1 to 0.5 mm.	Medium sand, 0.5 to 0.25 mm.	Fine sand, 0.25 to 0.1 mm.	Very fine sand, 0.1 to 0.05 mm.	Silt, 0.05 to 0.005 mm.	Clay, 0.005 to 0 mm.
			P. ct.	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*
11834	3½ miles W. of Lancaster.	Red loam, 0 to 4 inches	1.4	3.1	3.4	22.3	26.8	24.3	18.4
11832	2½ miles SW. of Vanwyck.	Red heavy loam, 0 to 4 inches.	2.1	10.3	9.3	23.4	14.7	11.7	28.1
11835	Subsoil of 11834	Red stiff clay, 4 to 36 inches.	.6	1.1	1.8	10.5	9.6	37.2	39.3
11833	Subsoil of 11832	Red stiff clay, 4 to 36 inches.	1.9	7.6	4.7	9.5	6.2	15.2	55.0

CECIL SANDY LOAM.

The Cecil sandy loam, on account of the demand for easily tillable land and the power of the soil to withstand drought, is considered equal to the Cecil clay in agricultural value. The soil, to a depth of from 6 to 15 inches, is a medium to fine sandy loam, brown or gray in color, and is underlain by a stiff, tenacious red or yellow clay, usually containing some sand. In its typical occurrence the subsoil is identical with that of the Cecil clay. Where the subsoil is a yellow clay, the sand in the soil is inclined to be finer, probably as a result of a difference in the rocks from which the red and the yellow clays were derived. In this phase the soil is closely related to the Cecil fine sandy loam, the one grading into the other. Quartz fragments occur in the Cecil sandy loam with the same frequency as in the Cecil clay. The line of demarcation between the two types is usually well defined.

The largest body of Cecil sandy loam is found in the extreme northwestern part of the county, while other considerable areas occur in the southern and other parts of the county. It occupies the undulating divides between stream courses, and occurs on level hilltops. The drainage is excellent.

The soil has been formed by the same process as the Cecil clay—by the slow weathering of granites and other similar rocks. Talcose schists play an important part in this soil's formation, giving rise to the yellow clay subsoil.

The Cecil sandy loam is adapted to cotton, corn, cowpeas, tobacco, and in a less degree to truck. It is exclusively farmed, however, to

the first three crops mentioned. From 180 to 230 pounds of lint cotton, and from 8 to 15 bushels of corn are produced per acre. Peaches and other small deciduous fruits would do well on this type of soil.

The following table shows the texture of fine earth of both soil and subsoil of the Cecil sandy loam:

Mechanical analyses of Cecil sandy loam.

No.	Locality.	Description.	Fine gravel, 2 to 1 mm.	Coarse sand, 1 to 0.5 mm.	Medium sand, 0.5 to 0.25 mm.	Fine sand, 0.25 to 0.1 mm.	Very fine sand, 0.1 to 0.05 mm.	Silt, 0.05 to 0.005 mm.	Clay, 0.005 to 0 mm
			P. ct.	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*
11816	6 miles N. of Lancaster.	Brown sandy loam, 0 to 8 inches.	6.2	12.5	9.9	24.3	24.9	16.4	5.5
11818	3¼ miles W. of Heath Spring.	Brown sandy loam, 0 to 12 inches.	2.4	12.4	14.6	32.1	16.4	12.8	9.0
11819	Subsoil of 11818	Red clay, 12 to 36 inches	.5	7.2	8.7	15.4	6.8	21.4	40.0
11817	Subsoil of 11816	Red clay, 8 to 36 inches	2.6	6.2	4.7	10.2	9.1	22.9	43.9

CECIL GRAVELLY LOAM.

The soil of the Cecil gravelly loam to a depth of 7 inches usually consists of a brown sandy loam, carrying varying quantities of feldspathic or quartz gravel, which range in size from very small particles to fragments one-half inch in diameter. The subsoil is a heavy micaceous red loam or clay loam, in which considerable gravel also occurs. The mica imparts a characteristic greasy feel to the material. The subsoil is underlain at from 10 to 25 feet by granite in a state of decomposition. Outcrops of granite appear at frequent intervals, and where these occur the sandy loam, or surface soil, is deeper, as is also the case where the type occurs in swales and bottoms. Frequently the red subsoil is exposed at the surface, giving rise to patches of soil resembling the Cecil clay.

The characterizing feature of the type is its lack of tenacity in both soil and subsoil, as a result of which the land erodes and gullies in a serious manner. Many gulches from 20 to 30 feet deep were noticed, and much of the land comprising this type is beyond profitable reclamation. It occupies the high, broken uplands in the southwestern corner of the county and occurs also in a few smaller areas in the southwestern corner. The drainage is in all cases good.

This soil has been derived from the breaking down of granites, chiefly of a coarse-grained variety. Road cuts and washouts reveal the complete process of disintegration in its different stages. The type is in many ways related to the Cecil clay, and in its sandier phases to the Cecil sandy loam, but it represents a less complete

weathering of the rocks, and this imparts a different character to the structure of the soil.

Twenty years ago this part of the county was very good agricultural land, but to-day the greater part of it is either abandoned or farmed by negroes, a result of the immense amount of washing and gullying which has taken place. Some of the type, however, is still very good farming land. The characteristic timber growth is oak, hickory, shortleaf pine, and some cedar.

For the first few years after cultivation excellent crop yields are obtained on the Cecil gravelly loam, but the productivity declines more rapidly than in other types of the Cecil series.

As long as a careful supervision is maintained over the soil, the crop yields compare favorably with those on the Cecil clay and the Cecil sandy loam. Cotton, corn, and cowpeas are the main crops. Cotton when properly cared for yields 230 pounds of lint and corn 8 to 15 bushels to the acre. Cowpeas do especially well. Grape growing on the precipitous hillsides and the cultivation of small fruits might be made profitable industries.

The results of mechanical analyses given in the following table show the texture of the fine earth of this soil type:

Mechanical analyses of Cecil gravelly loam.

No.	Locality.	Description.	Fine gravel, 2 to 1 mm.	Coarse sand, 1 to 0.5 mm.	Medium sand, 0.5 to 0.25 mm.	Fine sand, 0.25 to 0.1 mm.	Very fine sand, 0.1 to 0.05 mm.	Silt, 0.05 to 0.005 mm.	Clay, 0.005 to 0 mm.
			P. ct.	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*
11810	2¼ miles E. of Catawba River.	Brown sandy loam, 0 to 7 inches.	26.5	16.0	6.9	15.6	12.5	11.0	11.4
11812	1¼ miles S. of Heath Spring.	Brown sandy loam, 0 to 7 inches.	23.5	13.9	6.7	14.0	12.4	14.7	14.3
11811	Subsoil of 11810	Red loam, 7 to 36 inches	16.5	11.8	6.3	14.2	8.3	17.9	25.0
11813	Subsoil of 11812	Red heavy loam, 7 to 30 inches.	14.2	12.0	6.0	12.7	9.2	13.9	32.0

CECIL SILT LOAM.

The Cecil silt loam consists of a light-gray or ashy white silt loam, resting upon a yellow and slightly heavier silt loam at from 10 to 15 inches, which is underlain by a stiff yellow to red clay also containing silt in the upper few inches. This in turn gives way to the underlying talc schists. Where the weathering of these has not been deep, and they approach within 3 feet of the surface, the characteristic greasy feel of soapstone is imparted to the soil. Quartz fragments are conspicuous in places in both soil and subsoil, and frequently quartz veins are to be observed in the latter. These have

little or no effect upon the agricultural value of the soil. Fine sand is often mixed with the soil, so that the dividing line between this soil type and the Cecil fine sandy loam is somewhat arbitrary, the two types closely resembling each other, and having the same origin and surface features.

A distinct phase of the Cecil silt loam is found in the northeastern part of the county, in the vicinity of Tradesville. Here the underlying talc schists come near the surface, often outcropping. Forming, as they do, a barrier to cultivation, much of the area occupied by this phase is unfit for agricultural purposes. When the talc slates are found within 8 or 10 inches of the surface, the soil carries large quantities of fragments which are also strewn thickly over the surface.

The Cecil silt loam, locally known as "white land," is second in extent in the area, forming by far the greater part of the northeastern part of the county, and occurring in more limited areas in other parts of the county. It occupies the undulating and well-drained uplands, and owes its origin to the disintegration of talcose schists and slates. Its characteristic timber growth has caused it to be known in some localities as "black-jack" land. Oak, hickory, persimmon, and pine also formed a part of the original timber, though most of the land is now cleared. As is the case with the other upland types, the Cecil silt loam is cultivated to cotton, corn, and to some extent to cowpeas. The yield of cotton is from one-third to three-fourths of a bale, and of corn from 8 to 15 bushels per acre, thus not differing from the yields on the types already described.

The following table gives the results of mechanical analyses of the fine earth of typical samples of this soil:

Mechanical analyses of Cecil silt loam.

No.	Locality.	Description.	Fine gravel, 2 to 1 mm.	Coarse sand, 1 to 0.5 mm.	Medium sand, 0.5 to 0.25 mm.	Fine sand, 0.25 to 0.1 mm.	Very fine sand, 0.1 to 0.05 mm.	Silt, 0.05 to 0.005 mm.	Clay, 0.005 to 0 mm.
			P. ct.	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*
11830	4 miles NE. of Lancaster.	Silty loam, 0 to 16 inches.	2.9	3.9	1.4	5.0	16.3	61.6	8.6
11828	¼ mile S. of Lancaster.	Silty loam, 0 to 12 inches.	3.3	5.7	1.8	4.3	16.4	54.6	13.9
11826	2 miles N. of Primus.	Silty loam, 0 to 16 inches.	1.3	1.4	.7	2.9	9.4	68.4	15.7
11827	Subsoil of 11826	Yellow silty clay, 16 to 30 inches.	1.7	4.0	1.4	4.3	8.6	50.1	29.4
11831	Subsoil of 11830	Yellow silty clay, 16 to 36 inches.	1.3	2.3	.9	3.0	9.1	53.1	30.0
11829	Subsoil of 11828	Yellow silty clay, 12 to 36 inches.	1.0	2.1	.9	2.3	8.4	50.4	34.7

CECIL FINE SANDY LOAM.

The surface soil of the Cecil fine sandy loam consists of a light-gray fine sandy loam, grading into a pale-yellow fine sandy loam, slightly more compact. The surface soil extends to a depth of about 15 inches. Beneath this is found a yellow, or yellow mottled with red, subsoil, containing some sand for a few inches in its upper part. The whole is underlain at a depth greater than 3 feet by talc schists or slates, together with a small proportion of other altered rocks. Quartz fragments and gravel usually characterize the soil, and veins of the same material occur in the subsoil.

In structure the soil is an intermediate type between the Cecil sandy loam and the Cecil silt loam, though not necessarily so in occurrence. It grades into each of these, but so gradually that an arbitrary boundary separates them. Its largest distribution is in one continuous body, the central point of which is about 1 mile south of Drycreek. Much smaller areas are found elsewhere. The topographic position of the soil is similar to that of the Cecil sandy loam and Cecil silt loam—that is, on the undulating or level uplands. The drainage is almost perfect.

The Cecil fine sandy loam has been formed chiefly by the weathering of talcose schists and slates, though some other altered rocks enter into its formation. The timber growth consists of hickory, oak, and pine, with gums in the swales and depressions.

The two staple crops of the county, cotton and corn, are cultivated upon this type, as well as cowpeas, the last to a small extent. The average yields per acre are as follows: Cotton, about 200 pounds of lint; corn, from 8 to 15 bushels. The soil is also adapted to stone fruits and small grain. Alfalfa, it is thought, could be successfully grown upon it.

The texture of the fine earth of this type of soil is shown in the following table:

Mechanical analyses of Cecil fine sandy loam.

No.	Locality.	Description.	Fine gravel, 2 to 1 mm.	Coarse sand, 1 to 0.5 mm.	Medium sand, 0.5 to 0.25 mm.	Fine sand, 0.25 to 0.1 mm.	Very fine sand, 0.1 to 0.05 mm.	Silt, 0.05 to 0.005 mm.	Clay, 0.005 to 0 mm.
			P. ct.	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*
11820	½ mile S. of Drycreek.	Fine sandy loam, 0 to 15 inches.	0.9	4.7	4.2	29.7	33.7	21.7	5.1
11822	2½ miles NW. of Taxahaw.	Light loam, 0 to 14 inches.	1.4	5.1	2.7	11.3	19.3	52.0	7.9
11823	Subsoil of 11822	Yellow silty clay, 14 to 36 inches.	1.4	3.5	1.6	6.4	13.2	48.4	25.1
11821	Subsoil of 11820	Yellow clay, 15 to 36 inches.	.7	3.1	2.0	11.7	20.4	27.3	34.8

NORFOLK SAND.

The Norfolk sand is a coarse to medium gray, incoherent sand, overlying a yellow sand, which grades at 36 inches or more into a yellow sandy clay. The sand particles are to a large degree rounded. In its typical occurrence the soil contains no quartz fragments and gravel, but where granite bowlders have pushed up through the mantle of sand the product of decomposed granite considerably modifies the soil, and in these cases gravel and angular quartz sand occur. This phase, however, is very limited in extent as compared with the distribution of the typical soil.

The areas of the Norfolk sand are confined to the extreme southeastern part of the county, in the vicinity of Heath Spring and Kershaw. The type occupies the level or gently undulating divides between stream courses and is remarkably well drained. It is sedimentary in origin, the sand having been laid down over the older formations. It occupies the extreme northern part of the great sand belt which stretches across the State from the Savannah River near Augusta to the intersection of the North Carolina line by the Pedee River. The characteristic timber growth is oak, hickory, and longleaf pine.

Owing to its loose, porous structure this soil type frequently suffers from the effects of drought. On this account, and because of the tendency of the soil to leach, it is important to render the soil more compact and more retentive of moisture by giving it heavier applications of manure or by growing cowpeas more extensively than is necessary on the other soil types.

The Norfolk sand is cultivated to cotton, corn, cowpeas, and melons. Wheat and oats are grown in small quantities. The average yields per acre, when the land is carefully handled, are as follows: About 200 pounds of lint cotton, 10 bushels of corn, from 6 to 8 bushels of wheat, and 10 bushels of oats. Cowpeas and melons do well. The soil is admirably adapted to light and early truck and small fruits. Unimproved land of this type can be bought for $3 an acre and improved land for from $5 to $15.

The results of mechanical analyses of the Norfolk sand are given in the table following.

Mechanical analyses of Norfolk sand.

No.	Locality.	Description.	Fine gravel, 2 to 1 mm.	Coarse sand, 1 to 0.5 mm.	Medium sand, 0.5 to 0.25 mm.	Fine sand, 0.25 to 0.1 mm.	Very fine sand, 0.1 to 0.05 mm.	Silt, 0.05 to 0.005 mm.	Clay, 0.005 to 0 mm.
			P. ct.	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*
11836	1 mile SE. of Taxahaw.	Gray coarse sand, 0 to 8 inches.	8.9	28.9	21.0	24.2	9.6	5.7	1.6
11838	2 miles N. of Kershaw.	Gray coarse sand, 0 to 9 inches.	12.8	33.6	19.5	18.8	6.7	6.4	2.3
11837	Subsoil of 11836	Yellow coarse sand, 8 to 36 inches.	13.2	30.7	19.0	22.3	7.2	5.4	1.9
11839	Subsoil of 11838	Yellow coarse sand, 9 to 36 inches.	12.2	32.1	19.9	20.1	6.2	7.6	1.9

MEADOW.

As is characteristic of nearly all recent fluvial deposits, the Meadow is more or less heterogeneous in its nature. In its typical phase it is a chocolate-brown or reddish fine sandy loam, becoming somewhat heavier with depth. It sometimes develops into a loam or clay loam at a depth of 15 or 18 inches, while the color becomes darker and the soil more micaceous.

As the type is subject to overflow, the water, laden with sediments, has stood in the swales and depressions, and upon evaporation has left a heavier soil than that surrounding it. These places, however, cover only a small acreage.

The type is subject to variations along the minor stream courses. It occurs as a narrow strip along the Catawba River and the larger creeks, rarely exceeding one-eighth of a mile in width. It is subject to overflow once every three or four years. It consists of the finer particles which have been washed down from the adjacent hillsides and reworked by the streams with the sediment of the latter. This alluvium is very productive.

The Meadow is devoted to the production of corn and small quantities of sorghum. Corn averages from 20 to 30 bushels per acre. These "bottom lands" are greatly sought after, notwithstanding the risk of frequently losing a crop. Some portions command as much as $50 an acre.

WASHING AND GULLYING.

The Cecil clay, Cecil sandy loam, and, most markedly, the Cecil gravelly loam are the soil types most liable to damage from washing and gullying. As to the first two of these, this condition may be attributed to the rolling topography and fineness and compactness of the soil constituents, whereby the water from heavy rains is not

allowed to enter the soil except for a few inches, but runs off in rills, carrying with it the fine soil particles in suspension. These rills start little gullies, which, left to themselves, increase in size until they seriously affect the value of the land. In the case of the Cecil gravelly loam its high position on the uplands and the marked lack of tenacity in both soil and subsoil account for the serious erosion and gullying which takes place in this type.

With the clay soils especial attention should be given to the tillage of the land. Deep plowing and thorough cultivation, whereby the compact subsoil is rendered more friable and its texture more open, will largely prevent washing, as it tends to minimize surface drainage and to facilitate underdrainage. Terracing and contour cultivation should be more generally practiced, especially where the Cecil gravelly loam occurs. Putting areas in sod will help to prevent soils which have begun to gully from suffering further damage. Mulches, bushes, etc., placed in the gullies will also check the washing to a great extent.

Although much of the region occupied by the Cecil gravelly loam is beyond reclamation, a great deal could be done to prevent further denudations in areas that are still available as farming land. The incorporation with the soil of more organic matter, by which addition its structure would become more tenacious, would be decidedly beneficial.

AGRICULTURAL METHODS.

Cotton and corn are the principal crops in Lancaster County. The planting of cotton begins about the middle of April and is completed by the middle of May. The seed used is of the short-staple variety. The land is plowed from 4 to 6 inches deep, and laid off with the shovel plow, the fertilizer being drilled in and bedded with a turning plow. The rows are set from 3 to $3\frac{1}{2}$ feet apart. The usual fertilizer is cotton seed, sometimes composted with phosphates and stable manure, and applied at the rate of 25 bushels of seed and 200 pounds of acid phosphate to the acre. About 2 or $2\frac{1}{2}$ bushels of seed are required to plant 1 acre, the seed being usually sown by hand. When a stand is perfected the thinning process follows, the stalks being left about 6 inches apart. About four plowings suffice to keep the soil in good condition. Cotton picking begins the last of August, and harvesting is completed by Christmas. No effort is made to select the seed from the best-developed plants, the farmers not seeming to appreciate the fact that they can do much in this way to make the crop profitable.

The value of the cowpea in enriching the soil is partially recognized, but more attention should be given this crop by the majority of the farmers. A common practice is to plant cowpeas in the corn at

the last cultivation. The fodder is gathered by hand from the stalks and the corn harvested, and later the cowpeas are cut, cured, and stored for forage. The cornstalks are left in the field until the following spring, when they are gathered and burned. A few of the best farmers in the county recognize the economy of gathering the stalks and utilizing them for forage.

Fallowing is nowhere practiced, and the benefit derived from the rotation of crops is unappreciated. Cotton and corn occasionally follow each other. On the Norfolk sand crop rotation is even more necessary than on the heavier soils, and the following excellent three-year system has given very satisfactory results to the few leading farmers who have practiced it: First year, oats and cowpeas; second year, corn; and third year, cotton. The oats, maturing in June, are followed by the cowpeas, which are harvested in September and October, and the roots turned under. Stable manure, which has been composted with pine straw, is spread along with the oats. Not much stable manure is used, however, as stock raising plays no part in the agricultural interests of the county. Commercial fertilizers are extensively used, the Twelfth Census showing $70,380 expended for this purpose in the county in the year 1899.

No subsoiling is carried on, though in other localities the results from that practice have been beneficial. Plowing to the same depth each year explains in part why the heavier types of soil are rendered so compact, and why, as a consequence, they suffer so materially from drought. Such soils require deeper plowing to secure more thorough aeration and to aid in the conservation of moisture. An application of lime would tend to improve the structure of the Cecil clay by rendering the particles less cohesive. It is claimed that the expense attendant upon fall plowing does not warrant its being carried on, since the soils, in consequence of the winter rains, are about as compact in the spring as they ordinarily would be without fall plowing.

AGRICULTURAL CONDITIONS.

Although the soils and climatic conditions are identical with those found in other highly developed sections of the Piedmont Plateau, agriculture in Lancaster County is backward and is unquestionably retarded by the system of farming practiced. The large acreage devoted to certain crops is out of proportion to the amount of labor employed and cultivation given. A large number of farms are rented to those who have no personal interest in them, aside from the direct returns obtained thereform. The Twelfth Census shows the total area in farms to be 271,316 acres, of which 119,117 acres are improved. Only about 26 per cent of the farms are operated by the owners.

While most of the landowners who work their own farms are progressive and prosperous, the tenants as a class are not in a very

enviable condition. This is evidenced by the lack of comforts and conveniences which characterizes their homes. This condition is in great part the result of the lien system which prevails to a large extent within the area. As a rule, the tenants have little or no capital to carry on their work. The result is that in order to support themselves and their families while the crop is being cultivated, the merchant or landowner is allowed to take a mortgage on the crop or part of it, and it frequently happens that the value of one-third, three-fourths, or even of the whole crop is consumed before it is harvested, leaving nothing with which to commence the next year's work. This system is very unfortunate. As a natural consequence, the maintenance of soil productivity is a minor consideration, and statistics show that the lands thus utilized on most of the tenanted farms are steadily deteriorating in productiveness.

Several different systems of tenure prevail in the area, the share system being the most popular. In this case the landowner furnishes the stock, implements, and half the fertilizers, and the tenant furnishes the labor; an equal division of the crops being made. In some instances a specific rental is preferred, whereby a certain amount of cotton is taken by the landowner for the rent of each "one-horse" farm—in other words, from one to two bales for as much land as can be cultivated with a single horse, which is about 30 acres.

The average farm contains about 90 acres, but this average is considerably lowered when the small tracts tenanted by the negroes are taken into consideration. Many plantations comprise 1,000 acres or more. The farm values range from $2 or $3 an acre in the more inaccessible parts of the county to $25 or more near the towns, the average for improved land for the county at large being something over $14 an acre.

The farmers of Lancaster County have no troublesome labor question to deal with as yet. Field hands, usually colored, are available during all seasons of the year. They receive while working by the month from $8 to $15, and 50 cents a day when employed for shorter periods. During the cotton-picking season hands are paid according to the amount picked, the price ranging from 40 to 50 cents per hundred pounds.

The interests of the farmers are largely absorbed in the cultivation of cotton. According to the Twelfth Census, 49,646 acres were devoted to this purpose in the county. Corn is the next most extensive crop, the acreage for 1899, the latest available exact figures, being 33,059. Oats, wheat, peas, and truck, in the order named, are cultivated to a less degree. Small patches of sorghum are seen on many of the farms, the sirup made being used for domestic purposes. In the southeastern part of the county the sandier soils around Heath Spring and Kershaw are eminently adapted to melons, which are

grown to a considerable extent. None are shipped, however, the home market receiving the greater part of the supply. There are a few orchards, but very little is done toward keeping them in good condition. There is every reason to believe that the growing of fruits, such as peaches, pears, and plums, would be attended with great success. For these crops the sandier soils would prove better than the heavier types.

It is rather singular that so little attention is given to the production of vegetables for home consumption. There are to be found on almost every farm suitable soils for the cultivation of garden truck, which would help the farmer not only to reduce his living expenses to a minimum, but would furnish a greater diversity of diet for himself and his family, yet there is a marked lack of interest in the production of these necessaries.

Since stock raising is not followed in this county, and adequate manurial elements can not be supplied from this source, the legume must be chiefly relied upon as an economical soil renovator. The farmers are gradually realizing the beneficial results of such crops, and a more extensive acreage is being devoted to their cultivation. It can not be pointed out too clearly how invaluable such crops are in almost all sections of the South, not only in supplying plant food to the soil, but also in improving its physical structure. In addition to the cowpea, alfalfa has been grown with success in other localities on the Cecil sandy loam, and the Cecil fine sandy loam would be equally well adapted to it.

There is little encouragement, however, for a wider introduction of crops adapted to the soils of Lancaster County. Cotton will likely continue to be the all-important crop. A home market is afforded by the large mill situated at Lancaster, which consumes the greater part of the cotton grown in the county, Chester, Rockhill, and Camden receiving the surplus.

Fairly good transportation is afforded by the three railroads which enter the area. The Southern Railroad runs through the county in a northwest and southeast direction, passing through the town of Lancaster; the Seaboard Air Line intersects the panhandle in the extreme northwestern part, touching the villages of Vanwyck and Osceola; while the Lancaster and Chester Railroad offers a means of traffic between the towns of Lancaster and Chester. The eastern half of the county is somewhat at a disadvantage as regards transportation, since no railroads traverse that section.

The public highways are not very satisfactory. Several years ago they were worked by convict labor, but the farmers are now required to do this work, and the roads are not so good as formerly.

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SOIL MAP

SOUTH CAROLINA
LANCASTER COUNTY SHEET

SOIL PROFILE
(3 feet deep)

Norfolk sand — S, S
Cecil gravelly loam — Sgc, Sgc
Cecil sandy loam — Ssc, C
Cecil fine sandy loam — Ssc f, Scc
Cecil silt loam — Sic, Sic C
Cecil clay — Scc, C

LEGEND

S Sand
Ssc Sandy loam and gravel
Sgc Loam and gravel
Sac Sandy loam
C Clay
Ssc f Fine sandy loam
Scc Clay loam
Sic Silt loam
Sic C Silt and clay

LEGEND

N Norfolk sand
Cg Cecil gravelly loam
Cs Cecil sandy loam
Cf Cecil fine sandy loam
Csl Cecil silt loam
Cc Cecil clay
M Meadow
Stony areas

Soils surveyed by
Aldert S. Root and Lewis A. Hurst
1904.

Scale 1 inch=1 mile

ANDREW B. GRAHAM CO. LITHOGRAPHERS, WASHINGTON, D.C.

Field Operations
Bureau of Soils
1904.